A CITIZENS' GUIDE TO AIRBORNE CONTAMINANT REPORTING IN ONTARIO

IN SUPPORT OF

ONTARIO REGULATION 127/01
(AIRBORNE CONTAMINANT DISCHARGE - MONITORING AND REPORTING)

ONTARIO MINISTRY OF THE ENVIRONMENT

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A CITIZENS' GUIDE TO AIRBORNE CONTAMINANT REPORTING IN ONTARIO

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PART 1: THE CITIZENS' GUIDE

The Ontario government requires the owners and operators of approximately 5,000 facilities across the province in the industrial, commercial, institutional and municipal sectors to report on over 350 contaminants that they release to the air. As well as reporting this information to the provincial government, these facilities are required to make their reports available to any member of the public. The reporting organization (facility) is responsible for the validity and quality of its reported data.

The purpose of the *Citizens' Guide* is to help members of the public understand the air contaminants reporting system and to indicate how they can gain access to the information. The *Guide* describes who is required to report, what substances are reported, when the information must be reported, what is done with the reports and how the public can gain access to the reports.

The Ministry of the Environment gratefully acknowledges the work of the Canadian Institute for Environmental Law and Policy for their assistance in the preparation of this document.

This *Citizens' Guide* is for those who wish to gain access to and use the data that are reported. It is not a guide for those who do the reporting. The latter purpose is fulfilled by the provincial government's *Step by Step Guideline for Emission Calculation, Record Keeping and Reporting for Airborne Contaminant Discharge*; available at www.ene.gov.on.ca/envision/monitoring/monitoring.htm.

The information in *Guide* reflects Ontario's current reporting system, and addenda and revisions will be made as required.

PART 2: THE DEVELOPMENT OF AIRBORNE CONTAMINANT REPORTING IN ONTARIO

Why Airborne Contaminant Reporting?

Ontario's reporting system is to ensure that Ontario's residents have access to information on contaminants being released to the air in their communities.

An informed public will be better positioned to encourage companies and governments to take the actions needed to clean up Ontario's air. The information will also put the public in a better position to be able to make informed decisions in their personal lives that will result in cleaner air. For example, increased awareness of the pollutants released through power generation could stimulate the public to reduce their use of energy by adopting better conservation practices.

The Development of the Current Reporting System

Ontario has been monitoring and reporting on air quality throughout the province since the 1970s. However, information on the sources of the contaminants affecting air quality has been limited. But this information is essential for Ontario to make the proper decisions to improve air quality.

Therefore, in January 2000, the Ontario government announced plans to pass regulations requiring the owners and operators of certain types of facilities to report their air releases to the provincial government and to the public.

The first step in this strategy was the passing of Ontario Regulation 227/00 (O. Reg. 227/00), which required the electricity sector to report its emissions of 28 specified air pollutants provided their emissions met or exceeded the thresholds defined in the regulation. This regulation came into effect on May 1, 2000.

The second step was the passing of O. Reg. 127/01, which extended the monitoring and reporting requirements beyond the electricity sector to a wide range of industrial, commercial, institutional and municipal sectors. It also increased the number of substances for which reporting is mandatory to over 350 pollutants. This regulation came into effect for the larger source sectors on May 1, 2001 and for facilities belonging to smaller source sectors on January 1, 2002. O. Reg. 127/01 includes the provisions of O. Reg. 227/00 within it and as a result, replaces that regulation.

PART 3: UNDERSTANDING AIRBORNE CONTAMINANT REPORTING

In this part of the *Citizens' Guide*, the following questions will be answered:

- Who must report?
- What substances must be reported?
- What information must the reporter provide?
- When must the reports be provided?
- How can the public gain access to the reports?

Who must report?
The owners and operators of all specified Ontario facilities are required to assess whether they meet certain reporting criteria. If they meet these criteria, they are required to report their airborne contaminant emissions.

Failure to follow the requirements of the *Airborne Contaminant Discharge Monitoring and Reporting Regulation (O. Reg. 127/01)* can result in prosecution under Ontario's *Environmental Protection Act*.

Types of facilities:
Three classes of facilities are specified under O. Reg. 127/01:

- Class A: Electricity Generation;
- Class B: Sectors that contain large sources; and,
- Class C: Sectors that contain small sources.

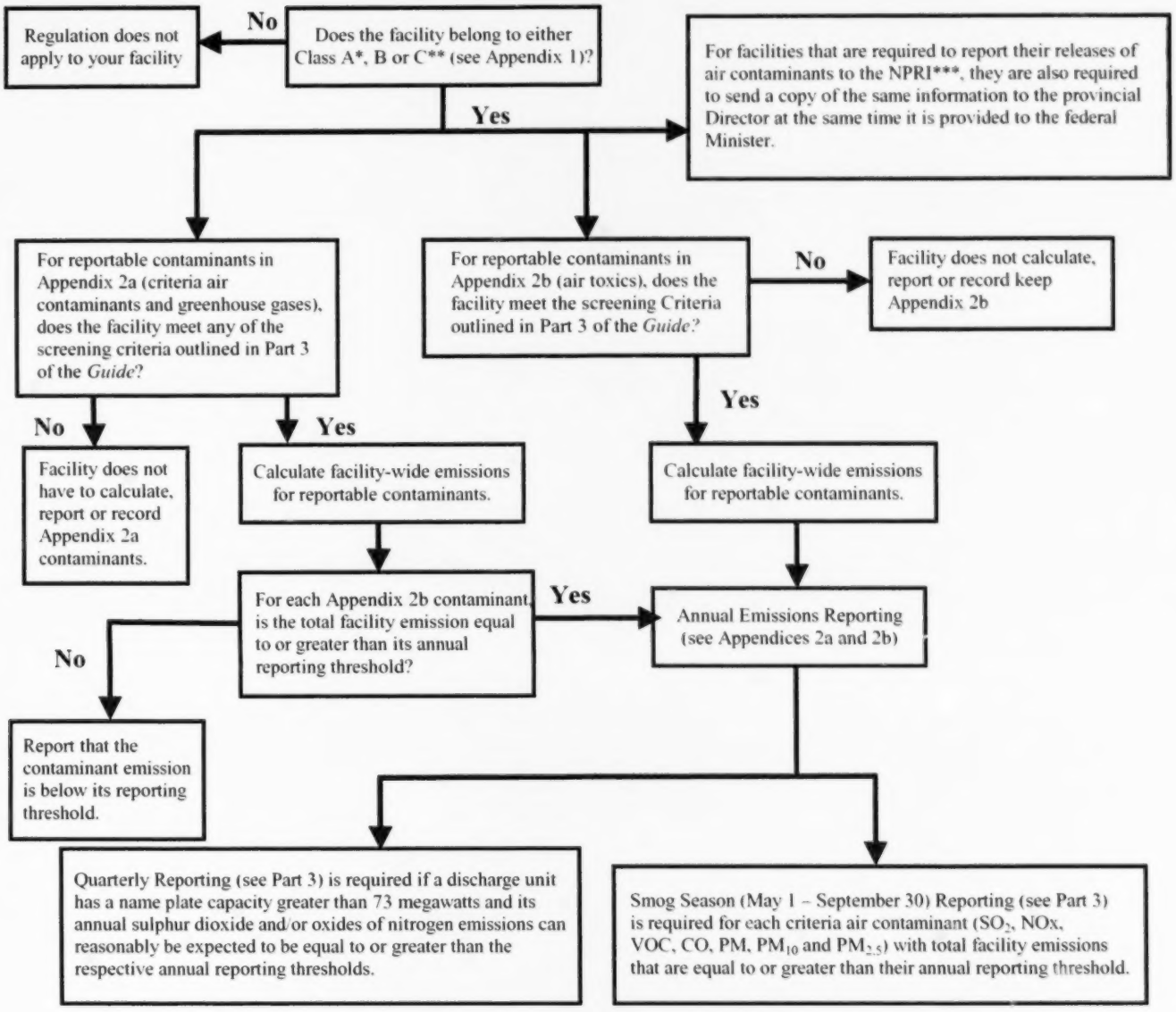
The detailed list of these facilities is in Appendix 1. If a facility that you are interested in is not one of the types listed in Appendix 1, the owner or operator of that facility is not required by O. Reg. 127/01 to provide you with their airborne release data.

Class A facilities were required to begin monitoring 28 airborne pollutants after May 1, 2000 (O. Reg. 227/00). Class A and B facilities were required to begin monitoring releases of over 350 pollutants after May 1, 2001 (O. Reg. 127/01). Class C facilities were required to begin monitoring their releases after January 1, 2002 (O. Reg. 127/01).

As of January 2002, there is no difference in the monitoring requirements for Class A, B or C facilities. The only reason you would need to distinguish between these classes is if you want to know whether a facility has to provide you with data for its releases before January 2002.

If a facility listed in Appendix 1 does not meet the reporting criteria, it will be exempted from reporting. Figure 1 summarizes the process that an owner or operator of a facility in Appendix 1 goes through to decide whether it is required to report.

Figure 1: Quick Reference for Reporting


Does the facility belong to either Class A*, B or C** (see Appendix 1)?
No
Regulation does not apply to your facility
Yes
For facilities that are required to report their releases of air contaminants to the NPRI***, they are also required to send a copy of the same information to the provincial Director at the same time it is provided to the federal Minister.
For reportable contaminants in Appendix 2a (criteria air contaminants and greenhouse gases), does the facility meet any of the screening criteria outlined in Part 3 of the *Guide*?
For reportable contaminants in Appendix 2b (air toxics), does the facility meet the screening Criteria outlined in Part 3 of the *Guide?*
No
Facility does not calculate, report or record keep Appendix 2b
No
Facility does not have to calculate, report or record Appendix 2a contaminants.
Yes
Calculate facility-wide emissions for reportable contaminants.
Yes
Calculate facility-wide emissions for reportable contaminants.
For each Appendix 2b contaminant, is the total facility emission equal to or greater than its annual reporting threshold?
Yes
Annual Emissions Reporting (see Appendices 2a and 2b)
No
Report that the contaminant emission is below its reporting threshold.
Quarterly Reporting (see Part 3) is required if a discharge unit has a name plate capacity greater than 73 megawatts and its annual sulphur dioxide and/or oxides of nitrogen emissions can reasonably be expected to be equal to or greater than the respective annual reporting thresholds.
Smog Season (May 1 – September 30) Reporting (see Part 3) is required for each criteria air contaminant (SO_2, NOx, VOC, CO, PM, PM_{10} and $PM_{2.5}$) with total facility emissions that are equal to or greater than their annual reporting threshold.

* For Class A facilities, this regulation does not apply to a generation facility that has a generating capacity of 1MW or less, or that sells 10 percent or less of its total electricity generated to the Independent Market Operator administered markets.

** If the facility belongs to Class C, the gathering of emissions data will begin January 1st, 2002.

*** The NPRI contaminants are listed at website: http://www.ec.gc.ca/pdb/npri

What substances must facilities report?
Ontario has three lists of substances that facilities may have to report on, provided they meet certain criteria: National Pollutant Release Inventory (NPRI) substances, criteria air pollutants and greenhouse gases, and air toxics. These substances were chosen to address a broad range of air issues.

NPRI substances: Provided they meet the reporting criteria, Ontario facilities listed in Appendix 1 must submit a copy of the air releases data from their NPRI report to the Ontario government. As of the 2001-reporting year, the NPRI air pollutant list was made up of 265 substances, which may be obtained through Environment Canada's NPRI website at http://www.ec.gv.ca/pdb/npri.

Criteria air contaminants and greenhouse gases: Ontario requires facilities to report on the following criteria air contaminants and greenhouse gases: oxides of nitrogen (NO_x), airborne particulate matter (PM), sulphur dioxide (SO_2), volatile organic compounds (VOCs), carbon dioxide (CO_2), carbon monoxide (CO), hydrofluorocarbon-134A (HFC-134A), methane (CH_4) and nitrous oxide (N_20).

If a facility meets at least one of the following criteria, it will be required to determine its airborne contaminant releases each year for the specified criteria air contaminants and greenhouse gases.

- The facility can reasonably be expected to use coal, refuse, wood or waste oil as a fuel at any time during the year.
- The facility can reasonably be expected to have, at any time during the year, a name plate (rated) capacity of greater than 3 million British thermal units (BTUs) per hour.
- The facility can reasonably be expected to use 3,000 kilograms (kg) or more of solvents during the year.
- The facility can reasonably be expected to use 3,000 kg or more of coating materials during the year.
- The facility can reasonably be expected to use 3,000 kg or more of printing ink during the year.
- The facility can reasonably be expected to use 5,000 kg or more of welding rods or welding wires during the year.

Once the facility has made its air emission calculations, it will have to submit a report detailing these releases, if the individual amount released during the year is equal to or greater than the respective threshold set by the province. Appendix 2a lists the reporting thresholds for each of the criteria air contaminants and greenhouse gases.

For example, a facility does not have to report the quantity of carbon dioxide if it released less than 100 million kg (i.e., 100,000 tonnes) during the year; by contrast, a facility has to report the quantity if it has released at least 10 kg (i.e., 0.01 tonnes) of HFC-134A.

The reporting thresholds have been set with the objective of capturing 90% of the releases of criteria air contaminants and greenhouse gases from all the facilities listed in Appendix 1.

For individual reporting facilities, the *Step-By-Step Guideline* specifies a due diligence provision that states:

> *For the purpose of reporting under this regulation, it is intended that for any given contaminant whose emissions are equal to or greater than its respective reporting threshold, at least 95% of the facility's total emissions are to be accounted for.*

Even if the quantities of criteria air contaminants and greenhouse gases released during the year were below the threshold, the facility must submit a report that says these emissions were below the threshold, but it does not have to specify the quantity released.

Air Toxics: Ontario requires reporting on 76 air toxics (Appendix 2b). Some of these air toxics are not on the NPRI list whereas others on the NPRI list have been put on Ontario's air toxic list for one or both of the following reasons:

- the substance is more precisely defined in the Ontario case.
- the NPRI reporting threshold is less stringent than Ontario's. For example, for all of the 76 air toxics, Ontario requires reporting below the NPRI's threshold of 10,000 kilograms manufactured, processed or otherwise used (MPO) during the year. For 35 of these substances, Ontario has a threshold of 3,000 kg MPO during the year; for another 35 substances, the threshold is 500 kg per year. For the remaining six substances, the thresholds are either 5 kg each year or 0.0001 kg each year.

A facility listed in Appendix 1 has to calculate and report its releases of these 76 air toxics if it meets both of the following criteria:

- the facility can reasonably be expected to employ or engage persons who work a cumulative total of 20,000 hours or more during the year.
- the contaminant can reasonably be expected to be MPO at the facility during the year in an amount equal to or greater than the threshold amount for the contaminant listed in Appendix 2b.

Ontario has set these reporting criteria at a level that it expects will result in reporting on at least 80% of the total air toxics released from all the facilities listed in Appendix 1. As stated earlier, for individual reporting facilities, the *Step-By-Step Guideline* says that 95% of the facility's total emissions should be accounted for.

Two cautions:
The users of these data should exercise caution in aggregating reported contaminant emissions in order to avoid misinterpretations.

Caution 1 — Avoid Double Counting: The list of over 350 pollutants listed in O. Reg. 127/01 includes both individual pollutants (e.g., toluene) and contaminant groups and compounds (e.g., VOCs). Therefore toluene should not be summed with total VOCs because the total VOCs value should already include toluene.

Caution 2 — Consider Differing Impacts: Since not all substances have the same effects on the environment and on human health, it is not appropriate to sum up all the emissions to generate a single value to indicate the magnitude of the effect on the environment or human health.

Simply adding up all the reports from a facility to get a total release may also result in double counting. In addition, year-to-year comparisons of releases at a facility or comparisons among facilities of total releases usually do not result in a good basis for making decisions about environmental and health impacts or the relative significance of releases.

Therefore when you make comparisons, you should first decide what kinds of environmental or health effects you want to focus on.

What information must the reporter provide?
The reporter must include information about the location of the facility, and the name and address of the organization that owns the facility. The reporter must also include contact information about the person who prepared the report.

Reporters for facilities in the electricity sector must also describe:

- the design capacity of the facility;
- the type of energy source; e.g., fossil fuel, hydro-electric, geothermal, nuclear, solar or wind;
- the fuel type used; e.g., the kind of coal or gas; and
- the amount of electricity generated at the facility each year and during the smog season (from May 1 to September 30).

Reporting is done on a facility-wide basis for each substance. For each substance, the following pieces of information must be included in the report:

- the total amount of emissions over the reporting period;
- the "mode of releases" of emissions; and
- the "estimation method."

The "mode of releases" refers to the way in which the pollutant was released to the air. The pollutant may have been released directly from a stack at the facility or as a result of substances vapourizing while in storage or during loading and unloading. The release to

the air could also be the result of fugitive emissions from leaks at the facility, pollutants rising from roads on the facility site, or spills.

The "estimation method" refers to the way in which the owner or operator of the facility determines how much of each contaminant was released to the air. These methods include:

- continuous emission monitoring;
- predictive emission monitoring;
- source testing;
- mass balance;
- emission factors;
- emission estimation models; and
- engineering calculations.

Usually the data are not the result of continuous emission monitoring since this would be very difficult to do, if technically possible at all, and very expensive. The emissions data are more frequently the product of calculations based on knowledge about the level of activity at the facility, occasional monitoring at the site and experience in similar operations. This allows the operator of the facility to arrive at an estimate of the level of emissions.

When must the reports be provided?
Ontario has three timings for reports.

1) An annual report is required for each of the pollutants covered in O. Reg. 127/01 provided the facility meets the reporting criteria and thresholds. The report covers January 1 to December 31 of each calendar year and must be submitted to the province and made available to the public by June 1 of the following year. Because O. Reg. 127/01 came into effect on May 1, 2001, the annual report for the year 2001 covers only the May 1 to December 31 period. The annual thresholds are reduced by one-third for 2001 to match the reduced reporting year. The emissions to air portion of the NPRI substances are reported to the ministry as reported to the NPRI (i.e., reporting and thresholds are for the 12-month period for 2001). For subsequent reporting years, annual reporting will cover the full 12-month period.

2) Facilities also must submit a report on the amount of certain smog contributing pollutants (SO_2, NO_x, VOCs, CO, PM, PM_{10} and $PM_{2.5}$) that they released during Ontario's smog season, which is defined as from May 1 to September 30. This smog season report must also be submitted by June 1 of the following year.

3) In addition to providing an annual report and a smog season report, facilities are required to submit quarterly reports on their releases of NO_x and SO_2. The quarterly reports must be submitted within 60 days after the end of each quarter.

   The facility must provide these quarterly reports if it has a discharge unit with the capacity to use 73 megawatts of total energy input (i.e., a name plate capacity of 73

megawatts) and can be expected to release at least 20 tonnes of SO_2 and/or 14 tonnes of NO_x (expressed as NO) during the full year.

The quarterly report must include information on the discharge unit. This information must include the capacity of the unit, the type of activity at the unit, the type of energy source and the fuel used. It also must include information for SO_2 and NO_x on the total quarterly release, the estimation method, the emission control device and the average emission rate.

How can the public gain access to the report?
Facility owners and operators must submit their reports to the Ontario Ministry of the Environment by the required reporting dates.

At the same time, reporters must ensure that their reports are available to any member of the public. Reports must be provided to the public, upon request, without any charge to the person who requests the report. Reports are to be available in either hard or electronic copies.

The owner or operator of the facility is required to ensure that each report is kept publicly available for at least seven years.

The totals for the airborne contaminant releases that are provided in these reports are based upon numerous calculations. The owner or operator of the facility must keep the information used to arrive at the totals for at least seven years. These records must be available to the provincial government for inspection at any time. The owner or operator does not, however, have to make these records available to the public.

If you wish to obtain a copy of an annual, smog season or quarterly report, you should contact the owner or operator of the facility that you are interested in. Some facilities may post these reports on their web site.

The ministry has also established a central Internet Web site where the public can access these reports. This Web site is available through a hotlink on the ministry's homepage at http://www.ene.gov.on.ca.

Part 4: CANADA'S NATIONAL POLLUTANT RELEASE INVENTORY (NPRI) AND ONTARIO REGULATION 127/01 (O. Reg. 127/01)

In January 1993, Canada's National Pollutant Release Inventory (NPRI) [1] came into effect requiring facilities to report each year on their releases of certain pollutants to air, water and land. These facilities must also report their transfers of these substances to other facilities for recycling or disposal.

The NPRI and O. Reg. 127/01 are similar but yet differ in several significant respects.

- The pollutants covered are more numerous in Ontario's reporting system. As of the 2001-reporting year, Ontario's system requires reporting on over 350 airborne contaminants in comparison with the 265 required by the NPRI.
- The reporting thresholds differ between the two systems for some substances.
- O. Reg. 127/01 requires reporting only on releases to air in contrast with the NPRI's requirements for reporting on releases to all three media (air, water and land), and on transfers off-site.

The Ontario and federal governments are working together to reduce potential confusion and duplication for reporters to the two systems and for users of the data. The objective is to develop a joint reporting system to allow for a one-window approach to reporting.

[1] The NPRI Internet site is www.ec.gc.ca/pdb/npri .

PART 5: CONCLUSION

Ontario's airborne contaminants reporting system is aimed at helping citizens better understand the sources of air pollutants and to help them participate in decision-making to address these issues. However by itself, O. Reg. 127/01 can not give a complete picture of the sources of air contamination in Ontario.

The Ontario reporting system does not include the air contaminants released from sources outside of Ontario. These sources can be responsible for a significant proportion of the air contaminants impacting our province. For example, more than 50 percent of the acid rain and smog-causing substances in Ontario's air come from sources in the United States.

The system also does not report on all air pollution sources within Ontario. For example, air contaminants from the exhaust pipes of motor vehicles are not included. This is usually the largest local source of smog-causing pollutants.

O. Reg. 127/01 is designed to collect air emissions data specifically from stationary sources. The Ministry of the Environment uses other methods to estimate emissions from mobile sources. The Ministry also has programs to control emissions from mobile sources, such as *Drive Clean*.

Nevertheless, Ontario's airborne contaminant reporting system provides you with substantial quantities of significant information from approximately 5,000 industrial, commercial, institutional and municipal facilities in Ontario.

We hope that this *Citizens' Guide to Airborne Contaminant Reporting in Ontario* will help you access and understand this information so that you can use it in your efforts to clean up and protect Ontario's air.

GLOSSARY

"Facility" includes all buildings, equipment, structures or other stationary items that are located on a single site or on adjacent sites and that are owned by the same company and operated as a single integrated site.

"MPO" means manufacture, process or otherwise use.

"Manufacture" means to produce or prepare a compound that contains a designated substance. It also includes the incidental production of a substance as a by-product as a result of another substance being manufactured, processed or otherwise used. This latter situation is sometimes referred to as "incidentally manufactured."

"Process" means the preparation of a designated substance after its manufacture for distribution in commerce, or the use of a designated substance as part of a chemical or physical process. Processing includes preparation of a substance with or without changes in physical state or chemical form. The term also applies to the processing of materials, mixtures or formulations that contain a designated substance as one component. See definition of "otherwise used" for more detail.

"Otherwise use" refers to any use of a designated substance at a facility that does not fall under the definitions of "manufacture" or "process." This includes the use of the substance as a chemical processing aid, a manufacturing aid or some other ancillary use, such as using trichloroethylene to degrease tools, using metal-cutting fluid that contains diethanolamine or using a heat-transfer fluid containing biphenyl. It does not include janitorial or facility grounds maintenance. Nevertheless, substances used in the maintenance of equipment used for manufacturing and processing at the facility are considered "otherwise used," e.g., solvents for cleaning machines.

"Releases" refers to pollutants that are discharged directly at the facility into the air. This is the total of releases from stacks, vents, etc., plus releases to the air as a result of storing or handling the material, plus fugitive releases through leaking pipes, evaporation from surface impoundments, etc., plus spills.

Appendix 1

Source Sectors for Airborne Contaminant Discharge Reporting

SECTOR DESCRIPTION WITH NAICS* CODES
CLASS A - ELECTRICITY GENERATION
ELECTRIC POWER GENERATION
221111* Hydro-Electric Power Generation
221112 Fossil-Fuel Electric Power Generation
221113 Nuclear Electric Power Generation
221119 Other Electric Power Generation
CLASS B - LARGE SOURCES
METAL ORE MINING
212210 Iron Ore Mining
212220 Gold and Silver Ore Mining
212231 Lead-Zinc Ore Mining
212232 Nickel-Copper Ore Mining
212233 Copper-Zinc Ore Mining
212291 Uranium Ore Mining
212299 All Other Metal Ore Mining
NON-METALLIC MINERALS MINING AND QUARRYING
212314 Granite Mining and Quarrying
212315 Limestone Mining and Quarrying
212316 Marble Mining and Quarrying
212317 Sandstone Mining and Quarrying
212323 Sand and Gravel Mining and Quarrying
212326 Shale, Clay and Refractory Mineral Mining and Quarrying
212394 Asbestos Mining
212395 Gypsum Mining
212396 Potash Mining
NATURAL GAS DISTRIBUTION
221210 Natural Gas Distribution
WATER, SEWAGE AND OTHER SYSTEMS
221330 Steam and Air-Conditioning Supply
TEXTILE MILLS AND TEXTILE MILL PRODUCTS
313110 Fibre, Yarn and Thread Mills
313210 Broad-Woven Fabric Mills
313310 Textile and Fabric Finishing
313320 Fabric Coating
314110 Carpet and Rug Mills
WOOD PRODUCT MANUFACTURING
321111 Sawmills (except Shingle and Shake Mills)
321112 Shingle and Shake Mills

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
321114	Wood Preservation
321211	Hardwood Veneer and Plywood Mills
321212	Softwood Veneer and Plywood Mills
321215	Structural Wood Product Manufacturing
321216	Particle Board and Fibreboard Mills
321217	Waferboard Mills
321911	Wood Window and Door Manufacturing
PULP, PAPER AND PAPERBOARD MILLS	
322111	Mechanical Pulp Mills
322112	Chemical Pulp Mills
322121	Paper (except Newsprint) Mills
322122	Newsprint Mills
322130	Paperboard Mills
CONVERTED PAPER PRODUCT MANUFACTURING	
322211	Corrugated and Solid Fibre Box Manufacturing
322212	Folding Paperboard Box Manufacturing
322219	Other Paperboard Container Manufacturing
322220	Paper Bag and Coated and Treated Paper Manufacturing
322230	Stationery Product Manufacturing
322291	Sanitary Paper Product Manufacturing
PRINTING AND RELATED SUPPORT ACTIVITIES	
323113	Commercial Screen Printing
323116	Manifold Business Forms Printing
323119	Other Printing (Includes Commercial Lithographic, Gravure and Flexographic Printing)
PETROLEUM REFINING AND DISTRIBUTION	
324110	Petroleum Refineries
412110	Petroleum Product Wholesaler-Distributors *(For gasoline bulk plants and terminals only)*
ASPHALT, OTHER PETROLEUM AND COAL PRODUCTS	
324121	Asphalt Paving Mixture and Block Manufacturing
324122	Asphalt Shingle and Coating Material Manufacturing
324190	Other Petroleum and Coal Products Manufacturing
CHEMICAL MANUFACTURING	
325110	Petrochemical Manufacturing
325120	Industrial Gas Manufacturing
325130	Synthetic Dye and Pigment Manufacturing
325181	Alkali and Chlorine Manufacturing
325189	All Other Basic Inorganic Chemical Manufacturing
325190	Other Basic Organic Chemical Manufacturing
325210	Resin and Synthetic Rubber Manufacturing
325220	Artificial and Synthetic Fibres and Filaments Manufacturing
325313	Chemical Fertilizer (except Potash) Manufacturing
325314	Mixed Fertilizer Manufacturing

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
325320	Pesticide and Other Agricultural Chemical Manufacturing
325410	Pharmaceutical and Medicine Manufacturing
325510	Paint and Coating Manufacturing
325520	Adhesive Manufacturing
325610	Soap and Cleaning Compound Manufacturing
325620	Toilet Preparation Manufacturing
325910	Printing Ink Manufacturing
325920	Explosives Manufacturing
325991	Custom Compounding of Purchased Resins
325999	All Other Miscellaneous Chemical Product Manufacturing
PLASTICS AND RUBBER PRODUCTS MANUFACTURING	
326111	Unsupported Plastic Bag Manufacturing
326114	Unsupported Plastic Film and Sheet Manufacturing
326121	Unsupported Plastic Profile Shape Manufacturing
326122	Plastic Pipe and Pipe Fitting Manufacturing
326130	Laminated Plastic Plate, Sheet and Shape Manufacturing
326140	Polystyrene Foam Product Manufacturing
326150	Urethane and Other Foam Product (except Polystyrene) Manufacturing
326160	Plastic Bottle Manufacturing
326191	Plastic Plumbing Fixture Manufacturing
326193	Motor Vehicle Plastic Parts Manufacturing
326210	Tire Manufacturing
326220	Rubber and Plastic Hose and Belting Manufacturing
NON-METALLIC MINERAL PRODUCT MANUFACTURING	
327110	Pottery, Ceramics and Plumbing Fixture Manufacturing
327120	Clay Building Material and Refractory Manufacturing
327214	Glass Manufacturing
327215	Glass Product Manufacturing from Purchased Glass
327310	Cement Manufacturing
327320	Ready-Mix Concrete Manufacturing
327330	Concrete Pipe, Brick and Block Manufacturing
327410	Lime Manufacturing
327420	Gypsum Product Manufacturing
327910	Abrasive Product Manufacturing
IRON AND STEEL MILLS AND FERRO-ALLOY MANUFACTURING	
331110	Iron and Steel Mills and Ferro-Alloy Manufacturing
STEEL PRODUCT MANUFACTURING FROM PURCHASED STEEL	
331210	Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel
331221	Cold-Rolled Steel Shape Manufacturing
331222	Steel Wire Drawing
ALUMINA AND ALUMINUM PRODUCTION AND PROCESSING	
331313	Primary Production of Alumina and Aluminum
331317	Aluminum Rolling, Drawing, Extruding and Alloying

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
NON-FERROUS METAL (EXCEPT ALUMINUM) PRODUCTION AND PROCESSING	
331410	Non-Ferrous Metal (except Aluminum) Smelting and Refining
331420	Copper Rolling, Drawing, Extruding and Alloying
331490	Non-Ferrous Metal (except Copper and Aluminum) Rolling, Drawing, Extruding and Alloying
FOUNDRIES	
331511	Iron Foundries
331514	Steel Foundries
331523	Non-Ferrous Die-Casting Foundries
331529	Non-Ferrous Foundries (except Die-Casting)
FABRICATED METAL PRODUCT MANUFACTURING	
332113	Forging
332118	Stamping
332210	Cutlery and Hand Tool Manufacturing
332311	Prefabricated Metal Building and Component Manufacturing
332314	Concrete Reinforcing Bar Manufacturing
332319	Other Plate Work and Fabricated Structural Product Manufacturing
332321	Metal Window and Door Manufacturing
332410	Power Boiler and Heat Exchanger Manufacturing
332420	Metal Tank (Heavy Gauge) Manufacturing
332431	Metal Can Manufacturing
332510	Hardware Manufacturing
332611	Spring (Heavy Gauge) Manufacturing
332619	Other Fabricated Wire Product Manufacturing
332720	Turned Product and Screw, Nut and Bolt Manufacturing
332810	Coating, Engraving, Heat Treating and Allied Activities
332910	Metal Valve Manufacturing
332991	Ball and Roller Bearing Manufacturing
COMPUTER AND ELECTRONIC PRODUCT MANUFACTURING	
334110	Computer and Peripheral Equipment Manufacturing
334210	Telephone Apparatus Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
334290	Other Communications Equipment Manufacturing
334410	Semiconductor and Other Electronic Component Manufacturing
334511	Navigational and Guidance Instruments Manufacturing
334512	Measuring, Medical and Controlling Devices Manufacturing
335110	Electric Lamp Bulb and Parts Manufacturing
335120	Lighting Fixture Manufacturing
335210	Small Electrical Appliance Manufacturing
335223	Major Kitchen Appliance Manufacturing
335311	Power, Distribution and Specialty Transformers Manufacturing
335312	Motor and Generator Manufacturing

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
335315	Switchgear and Switchboard, and Relay and Industrial Control Apparatus Manufacturing
335910	Battery Manufacturing
335920	Communication and Energy Wire and Cable Manufacturing
335930	Wiring Device Manufacturing
TRANSPORTATION EQUIPMENT MANUFACTURING	
336110	Automobile and Light-Duty Motor Vehicle Manufacturing
336120	Heavy-Duty Truck Manufacturing
336211	Motor Vehicle Body Manufacturing
336212	Truck Trailer Manufacturing
336215	Motor Home, Travel Trailer and Camper Manufacturing
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
336340	Motor Vehicle Brake System Manufacturing
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
336360	Motor Vehicle Seating and Interior Trim Manufacturing
336370	Motor Vehicle Metal Stamping
336390	Other Motor Vehicle Parts Manufacturing
336410	Aerospace Product and Parts Manufacturing
336510	Railroad Rolling Stock Manufacturing
336611	Ship Building and Repairing
336612	Boat Building
336990	Other Transportation Equipment Manufacturing
CLASS C - SMALL SOURCES	
WATER, SEWAGE AND OTHER SYSTEMS	
221320	Sewage Treatment Facilities
FOOD MANUFACTURING (FOR ANIMAL CONSUMPTION)	
311111	Dog and Cat Food Manufacturing
311119	Other Animal Food Manufacturing
FOOD MANUFACTURING (FOR HUMAN CONSUMPTION)	
	This sector applies to facilities using food ingredients which are subject to the Canadian Food and Drug Act in the manufacturing of products for human consumption, who:
	a) derive <50% revenues from annual retail sales on premises; OR
	b) utilize combustion with the maximum rated heat input capacity > 10 MMBTU/hour burning fuel other than coal, wood or waste oil.
311211	Flour Milling
311214	Rice Milling and Malt Manufacturing
311221	Wet Corn Milling
311224	Oilseed Processing
311225	Fat and Oil Refining and Blending
311230	Breakfast Cereal Manufacturing
311310	Sugar Manufacturing
311320	Chocolate and Confectionery Manufacturing from Cacao Beans

SECTOR DESCRIPTION WITH NAICS* CODES	
311330	Confectionery Manufacturing from Purchased Chocolate
311340	Non-Chocolate Confectionery Manufacturing
311410	Frozen Food Manufacturing
311420	Fruit and Vegetable Canning, Pickling and Drying
311511	Fluid Milk Manufacturing
311515	Butter, Cheese, and Dry and Condensed Dairy Products Manufacturing
311520	Ice Cream and Frozen Dessert Manufacturing
311614	Rendering and Meat Processing from Carcasses
311615	Poultry Processing
311710	Seafood Product Preparation and Packaging
311814	Commercial Bakeries and Frozen Bakery Product Manufacturing
311821	Cookie and Cracker Manufacturing
311822	Flour Mixes and Dough Manufacturing from Purchased Flour
311823	Dry Pasta Manufacturing
311830	Tortilla Manufacturing
311911	Roasted Nut and Peanut Butter Manufacturing
311919	Other Snack Food Manufacturing
311920	Coffee and Tea Manufacturing
311930	Flavouring Syrup and Concentrate Manufacturing
311940	Seasoning and Dressing Manufacturing
312110	Soft Drink and Ice Manufacturing
312120	Breweries
312130	Wineries
312140	Distilleries
TOBACCO MANUFACTURING	
312210	Tobacco Stemming and Redrying
312220	Tobacco Product Manufacturing
LEATHER AND ALLIED PRODUCT MANUFACTURING	
316110	Leather and Hide Tanning and Finishing
316210	Footwear Manufacturing
316990	Other Leather and Allied Product Manufacturing
MACHINERY MANUFACTURING	
333110	Agricultural Implement Manufacturing
333120	Construction Machinery Manufacturing
333130	Mining and Oil and Gas Field Machinery Manufacturing
333210	Sawmill and Woodworking Machinery Manufacturing
333220	Rubber and Plastics Industry Machinery Manufacturing
333291	Paper Industry Machinery Manufacturing
333310	Commercial and Service Industry Machinery Manufacturing
333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing
333416	Heating Equipment and Commercial Refrigeration Equipment Manufacturing

SECTOR DESCRIPTION WITH NAICS* CODES	
333511	Industrial Mould Manufacturing
333519	Other Metalworking Machinery Manufacturing
333611	Turbine and Turbine Generator Set Unit Manufacturing
333619	Other Engine and Power Transmission Equipment Manufacturing
333910	Pump and Compressor Manufacturing
333920	Material Handling Equipment Manufacturing
FURNITURE AND RELATED PRODUCT MANUFACTURING	
337110	Wood Kitchen Cabinet and Counter Top Manufacturing
337121	Upholstered Household Furniture Manufacturing
337123	Other Wood Household Furniture Manufacturing
337126	Household Furniture (except Wood and Upholstered) Manufacturing
337127	Institutional Furniture Manufacturing
337213	Wood Office Furniture, including Custom Architectural Woodwork, Manufacturing
337214	Office Furniture (except Wood) Manufacturing
337215	Showcase, Partition, Shelving and Locker Manufacturing
337910	Mattress Manufacturing
337920	Blind and Shade Manufacturing
TRANSPORTATION OPERATION	
	(For maintenance and repair yard only)
485110	Urban Transit Systems
485210	Inter-urban and Rural Bus Transportation
COMMERCIAL BUILDINGS	
	(Commercial buildings include office buildings, hotels, shopping centres. Report SO_2, NO_X, and HFC-134A emissions from heating or cooling systems if the emissions are equal to or greater than their respective reporting thresholds)
531120	Lessors (or Owners) of Non-Residential Buildings (except Mini-Warehouses)
TESTING LABORATORIES	
	(For product development and testing only)
541380	Testing Laboratories
WASTE MANAGEMENT AND REMEDIATION SERVICES	
562110	Waste Collection
562210	Waste Treatment and Disposal
562910	Remediation Services
562920	Material Recovery Facilities
562990	All Other Waste Management Services
EDUCATIONAL SERVICES	
	(For universities, report SO_2, NO_X, and HFC-134A emissions from heating or cooling systems if the emissions are equal to or greater than their respective reporting thresholds)
611310	Universities

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES
HEALTH CARE *(For hospitals with incinerators only)* 622111 General (except Paediatric) Hospitals 622112 Paediatric Hospitals 622210 Psychiatric and Substance Abuse Hospitals 622310 Specialty (except Psychiatric and Substance Abuse) Hospitals
AUTO REPAIR SERVICES 811121 Automotive Body, Paint and Interior Repair and Maintenance
DRY CLEANING AND LAUNDRY SERVICES *(For bulk dry cleaning depots/plants only)* 812320 Dry Cleaning and Laundry Services (except Coin-Operated)
CLASS C - SMALL SOURCES ***MISCELLANEOUS***
OIL AND GAS EXTRACTION 211113 Conventional Oil and Gas Extraction 211114 Non-Conventional Oil Extraction
COAL MINING 212114 Bituminous Coal Mining 212115 Sub-bituminous Coal Mining 212116 Lignite Coal Mining
NON-METALLIC MINERALS MINING AND QUARRYING 212392 Diamond Mining 212393 Salt Mining 212397 Peat Extraction 212398 All Other Non-Metallic Mineral Mining and Quarrying
SUPPORT ACTIVITIES FOR MINING AND OIL AND GAS EXTRACTION 213111 Oil and Gas Contract Drilling 213117 Contract Drilling (except Oil and Gas) 213118 Services to Oil and Gas Extraction 213119 Other Support Activities for Mining
ELECTRIC POWER TRANSMISSION AND DISTRIBUTION 221121 Electric Bulk Power Transmission and Control 221122 Electric Power Distribution
FOOD MANUFACTURING (FOR HUMAN CONSUMPTION) *This sector applies to facilities using food ingredients which are subject to the Canadian Food and Drug Act in the manufacturing of products for human consumption, who:* *a) derive <50% revenues from annual retail sales on premises; OR* *b) utilize combustion with the maximum rated heat input capacity > 10 MMBTU/hour burning fuel other than coal, wood or waste oil.* 311611 Animal (except Poultry) Slaughtering 311990 All Other Food Manufacturing

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
TEXTILE MILLS AND TEXTILE MILL PRODUCTS	
313220	Narrow Fabric Mills and Schiffli Machine Embroidery
313230	Non-woven Fabric Mills
313240	Knit Fabric Mills
314120	Curtain and Linen Mills
314910	Textile Bag and Canvas Mills
314990	All Other Textile Product Mills
CLOTHING MANUFACTURING	
315110	Hosiery and Sock Mills
315190	Other Clothing Knitting Mills
315210	Cut and Sew Clothing Contracting
315221	Men's and Boys' Cut and Sew Underwear and Nightwear Manufacturing
315222	Men's and Boys' Cut and Sew Suit, Coat and Overcoat Manufacturing
315226	Men's and Boys' Cut and Sew Shirt Manufacturing
315227	Men's and Boys' Cut and Sew Trouser, Slack and Jean Manufacturing
315229	Other Men's and Boys' Cut and Sew Clothing Manufacturing
315231	Women's and Girls' Cut and Sew Lingerie, Loungewear and Nightwear Manufacturing
315232	Women's and Girls' Cut and Sew Blouse and Shirt Manufacturing
315233	Women's and Girls' Cut and Sew Dress Manufacturing
315234	Women's and Girls' Cut and Sew Suit, Coat, Tailored Jacket and Skirt Manufacturing
315239	Other Women's and Girls' Cut and Sew Clothing Manufacturing
315291	Infants' Cut and Sew Clothing Manufacturing
315292	Fur and Leather Clothing Manufacturing
315299	All Other Cut and Sew Clothing Manufacturing
315990	Clothing Accessories and Other Clothing Manufacturing
WOOD PRODUCT MANUFACTURING	
321919	Other Millwork
321920	Wood Container and Pallet Manufacturing
321991	Manufactured (Mobile) Home Manufacturing
321992	Prefabricated Wood Building Manufacturing
321999	All Other Miscellaneous Wood Product Manufacturing
CONVERTED PAPER PRODUCT MANUFACTURING	
322299	All Other Converted Paper Product Manufacturing
PRINTING AND RELATED SUPPORT ACTIVITIES	
323114	Quick Printing
323115	Digital Printing
323120	Support Activities for Printing
PLASTICS AND RUBBER PRODUCTS MANUFACTURING	
326198	All Other Plastic Product Manufacturing
326290	Other Rubber Product Manufacturing

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES	
NON-METALLIC MINERAL PRODUCT MANUFACTURING	
327390	Other Concrete Product Manufacturing
327990	All Other Non-Metallic Mineral Product Manufacturing
FABRICATED METAL PRODUCT MANUFACTURING	
332329	Other Ornamental and Architectural Metal Products Manufacturing
332439	Other Metal Container Manufacturing
332710	Machine Shops
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
MACHINERY MANUFACTURING	
333299	All Other Industrial Machinery Manufacturing
333990	All Other General-Purpose Machinery Manufacturing
COMPUTER AND ELECTRONIC PRODUCT MANUFACTURING	
334310	Audio and Video Equipment Manufacturing
334610	Manufacturing and Reproducing Magnetic and Optical Media
335229	Other Major Appliance Manufacturing
335990	All Other Electrical Equipment and Component Manufacturing
OTHER MISCELLANEOUS MANUFACTURING	
339110	Medical Equipment and Supplies Manufacturing
339910	Jewellery and Silverware Manufacturing
339920	Sporting and Athletic Goods Manufacturing
339930	Doll, Toy and Game Manufacturing
339940	Office Supplies (except Paper) Manufacturing
339950	Sign Manufacturing
339990	All Other Miscellaneous Manufacturing
MISCELLANEOUS WHOLESALER-DISTRIBUTORS	
418190	Other Recyclable Material Wholesaler-Distributors
418410	Chemical (except Agricultural) and Allied Product Wholesaler-Distributors
TRANSPORTATION OPERATION *(For maintenance and repair yard only)*	
481110	Scheduled Air Transportation
481214	Non-Scheduled Chartered Air Transportation
481215	Non-Scheduled Specialty Flying Services
482112	Short-Haul Freight Rail Transportation
482113	Mainline Freight Rail Transportation
482114	Passenger Rail Transportation
483115	Deep Sea, Coastal and Great Lakes Water Transportation (except by Ferries)
483116	Deep Sea, Coastal and Great Lakes Water Transportation by Ferries
486110	Pipeline Transportation of Crude Oil
486210	Pipeline Transportation of Natural Gas
486910	Pipeline Transportation of Refined Petroleum Products
486990	All Other Pipeline Transportation

*NAICS - North American Industry Classification System

SECTOR DESCRIPTION WITH NAICS* CODES
SUPPORT ACTIVITIES FOR TRANSPORTATION
488111 Air Traffic Control
488119 Other Airport Operations
488190 Other Support Activities for Air Transportation
488210 Support Activities for Rail Transportation
488390 Other Support Activities for Water Transportation
488490 Other Support Activities for Road Transportation
488519 Other Freight Transportation Arrangement
PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES
541990 All Other Professional, Scientific and Technical Services
ADMINISTRATIVE AND SUPPORT SERVICES
561990 All Other Support Services
EDUCATIONAL SERVICES
(For colleges of applied arts and technology, report SO_2, NO_X, and HFC-134A emissions from heating or cooling systems if they are equal to or greater than their respective reporting thresholds)
611210 Community Colleges and C.E.G.E.P.s (collège d'enseignement générales et professionelles)
PHOTO FINISHING SERVICES
(For commercial and professional photo finishing laboratories on a large scale basis)
812921 Photo Finishing Laboratories (except One-Hour)

*NAICS - North American Industry Classification System

Appendix 2

Airborne Contaminants with MOE Release Based Thresholds		
Contaminant	**CAS [1]**	**Release Threshold (kg/yr)**
CARBON DIOXIDE (CO2)	124-38-9	100,000,000
CARBON MONOXIDE (CO)	630-08-0	20,000
HFC-134A	811-97-2	10
METHANE (CH4)	74-82-8	5,000,000
NITROUS OXIDE (N2O)	10024-97-2	2,700
OXIDES OF NITROGEN (EXPRESSED AS NO)	10102-43-9	14,000
PM - PARTICULATE MATTER	N/A - M08	20,000
PM_{10} - PARTICULATE MATTER ≤ 10 MICROMETERS	N/A - M09	500
$PM_{2.5}$ - PARTICULATE MATTER ≤ 2.5 MICROMETERS	N/A - M10	300
SULPHUR DIOXIDE (SO2)	7446-09-5	20,000
VOLATILE ORGANIC COMPOUNDS (VOCs) [20]	N/A - M16	10,000
	Total Contaminants: 11	

N/A - Refer to comments in Notes to Appendices 2 and 3
MOE - Ministry of the Environment
CAS - Chemical Abstracts Service registry number
kg/yr - kilograms per year
HFC - hydrofluorocarbon

Appendix 3

Airborne Contaminants with MOE Graded MPO[22] Thresholds		
Contaminant	**CAS [1]**	**MPO[22] Threshold (kg/yr)**
ACETIC ACID	64-19-7	3,000
ACETONE	67-64-1	3,000
ACETYLENE	74-86-2	3,000
BORON	7440-42-8	3,000
BORON TRIBROMIDE	10294-33-4	3,000
BORON TRICHLORIDE	10294-34-5	3,000
CALCIUM HYDROXIDE	1305-62-0	3,000
CALCIUM OXIDE	1305-78-8	3,000
DECABORANE	17702-41-9	3,000
DICAPRYL PHTHALATE	131-15-7	3,000
1,1-DICHLOROETHANE	75-34-3	3,000
DIMETHYL DISULPHIDE	624-92-0	3,000
DIMETHYL SULPHIDE	75-18-3	3,000
ETHYL ACETATE	141-78-6	3,000
ETHYL ETHER	60-29-7	3,000
FERRIC OXIDE	1309-37-1	3,000
FURFURAL	98-01-1	3,000
FURFURYL ALCOHOL	98-00-0	3,000
GLYCOL ETHERS (MISC.) [18]	N/A - M04	3,000
N-HEPTANE	142-82-5	3,000
IRON (AND ITS COMPOUNDS) [17]	7439-89-6	3,000
LITHIUM - OTHER THAN HYDRIDES	7439-93-2	3,000
MAGNESIUM OXIDE	1309-48-4	3,000
MINERAL SPIRITS GROUP #1 [19]	N/A - M06	3,000
MINERAL SPIRITS GROUP #2 [19]	N/A - M17	3,000
PENTACHLORONITROBENZENE	82-68-8	3,000
TETRAHYDROFURAN	109-99-9	3,000
TIN (AND ITS COMPOUNDS) [17]	7440-31-5	3,000

N/A - Refer to comments in Notes to Appendices 2and 3
MOE - Ministry of the Environment
MPO - Manufactured, Processed or Otherwise used
CAS - Chemical Abstracts Service registry number

Airborne Contaminants with MOE Graded MPO[22] Thresholds		
Contaminant	**CAS [1]**	**MPO[22] Threshold (kg/yr)**
TITANIUM (AND ITS COMPOUNDS) [17]	7440-32-6	3,000
TOTAL REDUCED SULPHUR (TRS) [24]	N/A - M14	3,000
1,1,1-TRICHLOROETHANE	71-55-6	3,000
2,4,5-TRICHLOROPHENOL	95-95-4	3,000
1,2,3-TRICHLOROPROPANE	96-18-4	3,000
VINYL BROMIDE	593-60-2	3,000
VINYL FLOURIDE	75-02-5	3,000
ARSINE	7784-42-1	500
BENZIDINE	92-87-5	500
BERYLLIUM (AND ITS COMPOUNDS)	7440-41-7	500
BIS (2-CHLOROETHYL) ETHER	111-44-4	500
BIS (CHLOROMETHYL) ETHER	542-88-1	500
CARBON BLACK	1333-86-4	500
CHROMIUM (VI) COMPOUNDS	18540-29-9	500
COAL TAR PITCH VOLATILES - SOLUBLE FRACTION	8007-45-2	500
COKE OVEN EMISSIONS [21]	N/A - M02	500
DIBORANE	19287-45-7	500
1,2-DIBROMOETHANE	106-93-4	500
3,3-DICHLOROBENZIDINE	91-94-1	500
1,2-DIMETHYLHYDRAZINE	57-14-7	500
1,6-DINITROPYRENE	42397-64-8	500
1,8-DINITROPYRENE	42397-65-9	500
HEPTACHLOR	76-44-8	500
HEXACHLORO-1,3-BUTADIENE	87-68-3	500
HEXACHLOROCYCLOHEXANE	319-84-6	500
HEXAMETHYLENE DIISOCYANATE MONOMER	822-06-0	500
LITHIUM HYDRIDES	7580-67-8	500
MERCAPTANS (AS METHYL MERCAPTAN) -TOTAL	74-93-1	500
METHYLCYCLOPENTADIENYL MANGANESE TRICARBONYL (MMT)	12108-13-3	500

N/A - Refer to comments in Notes to Appendices 2and 3
MOE - Ministry of the Environment
MPO - Manufactured, Processed or Otherwise used
CAS - Chemical Abstracts Service registry number

Airborne Contaminants with MOE Graded MPO[22] Thresholds		
Contaminant	**CAS [1]**	**MPO[22] Threshold (kg/yr)**
MINERAL SPIRITS GROUP #3 [19]	N/A - M18	500
MONOMETHYL AMINE	74-89-5	500
NICKEL CARBONYL	13463-39-3	500
N-NITROSODIETHYLAMINE	55-18-5	500
N-NITROSODIMETHYLAMINE	62-75-9	500
OCTACHLOROSTYRENE	29082-74-4	500
PARATHION	56-38-2	500
PENTABORANE	19624-22-7	500
PENTACHLOROPHENOL (PCP)	87-86-5	500
POLYCHLORINATED BIPHENYLS (PCBS)	1336-36-3	500
TELLURIUM - EXCLUDING HYDROGEN TELLURIDE	13494-80-9	500
TRIBUTYLTIN	688-73-3	500
2,4,6-TRICHLOROPHENOL	88-06-2	500
METHYL MERCURY	22967-92-6	5
PAH - ACENAPHTHENE	83-32-9	5
PAH - ACENAPHTHYLENE	208-96-8	5
PAH - FLUORENE	86-73-7	5
2,3,7,8-TETRACHLORODIBENZOFURAN (TEQ)	51207-31-9	0.0001
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN (TEQ)	1746-01-6	0.0001
	Total Contaminants:	76

Notes to Appendices 2 and 3

* No single CAS number applies to this NPRI listing.

[1] CAS No. denotes the Chemical Abstracts Service Registry Number, as appropriate. MOE assigned codes denoted with "N/A - Mxx" to contaminants when no single CAS number applies to a specific contaminant.

[2] "and its salts" — The CAS number corresponds to the weak acid or base. However, the NPRI listing includes the salts of these weak acids and bases. When calculating the weight of these substances and their salts, use the molecular weight of the acid or base, not the total weight of the salt.

[3] "fume or dust"

[4] "fibrous forms"

[5] "Ammonia (total)" means the total of both of ammonia (NH_3 — CAS number 7664-41-7) and the ammonium ion (NH_4^+) in solution.

[6] "and its compounds"

[7] "friable form"

[8] "mixed isomers"

[9] "ionic"

[10] The isomers include, but are not necessarily limited to, HCFC-122 (CAS Number 354-21-2).

[11] The isomers include, but are not necessarily limited to, HCFC-123 (CAS Number 306-83-2) and HCFC 123a (CAS Number 90454-18-5).

[12] The isomers include, but are not necessarily limited to, HCFC 124 (CAS Number 2837-89-0) and HCFC 124a (CAS Number 354-25-6).

[13] "in solution at a pH of 6.0 or greater"

[14] "yellow or white"

[15] The reporting requirements for mercury have changed for the 2000 reporting year.

[16] This class of substances is restricted to the following congeners: 2,3,7,8-Tetrachlorodibenzo-p-dioxin (1746-01-6); 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (40321-76-4); 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (39227-28-6); 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (19408-74-3); 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (57653-85-7); 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (35822-46-9); Octachlorodibenzo-p-dioxin (326-87-9); 2,3,7,8-Tetrachlorodibenzofuran (51207-31-9); 2,3,4,7,8-Pentachlrordibenzofuran (57117-31-4); 1,2,3,7,8-Pentachlorodibenzofuran (57117-41-6); 1,2,3,4,7,8-Hexachlorodibenzofuran (70648-26-9); 1,2,3,7,8,9-Hexachlorodibenzofuran (72918-21-9); 1,2,3,6,7,8-Hexachlorodibenzofuran (57117-44-9); 2,3,4,6,7,8-Hexachlorodibenzofuran (60851-34-5); 1,2,3,4,6,7,8-Heptachlorodibenzofuran (67562-39-4); 1,2,3,4,7,8,9-Heptachlorodibenzofuran (55673-89-7); and Octachlorodibenzofuran (39001-02-0).

[17] Refers to the metal portion of the compounds emitted to the atmosphere. Reporting facilities are only required to report PM, PM_{10}, and $PM_{2.5}$ components of fugitive dust emissions from storage piles, road dust, landfill sites, quarries and mine tailings.

[18] Refer to Annex 1 to Appendix 3 for contaminants listed under glycol ethers (misc.). If one contaminant is equal to or greater than the threshold, then all contaminants in the group

, which are manufactured, processed, or otherwise used, must be reported. No emission value should be reported for contaminants that facilities do not manufacture, process or otherwise use.

[19] Refer to Annex 2 to Appendix 3 for definitions of the three mineral spirits groups and their associated contaminants. If one contaminant in the group is equal to or greater than the threshold, then all contaminants in that group, which are manufactured, processed, or otherwise used, must be reported. No emission value should be reported for contaminants that facilities do not manufacture, process or otherwise use.

[20] Refer to Annex 1 to Appendix 2 for the definition of VOCs.

[21] "Coke oven emissions" means the emissions discharged to the atmosphere in the operation of coke oven batteries. Emissions will occur at charging, pushing or quenching operation, bypass, bleeder, and from coke oven doors. Organic compounds soluble in benzene are the major constituents of PM emissions and are also included as VOC. Among the toxic air pollutants included in the organic emissions are benzene, toluene, xylenes, cyanide compounds, naphthalene, phenol, and Polycyclic Organic Matters (POM), all of which are contained in coke oven emissions[3].
FIRE[2] has emission factors for coke oven emissions for pushing operation, oven door leaks and topside leaks.

[22] MPO means manufactured, processed or otherwise used. By-products must be included in the calculation of the MPO reporting threshold (tonnes or kilograms), even if they are at a concentration of less than one percent by weight. A facility must report its air emissions if contaminants are equal to or greater than the MPO thresholds and the facility has employees that worked a total of 20,000 hours or more (which is equivalent to 10 full-time employees) during the reporting year.

[23] National Pollutant Release Inventory, Environment Canada. Reporting requirements and thresholds as gazetted for the reporting year (also refer to NPRI[16] reporting guidelines for details). Record keeping requirements will be the same as in Table 7.

[24] Total reduced sulphur (TRS) consists of hydrogen sulphide (H_2S), dimethyl sulphide [$(CH_3)_2S$], dimethyl disulphide [$(CH_3)_2S_2$] and methyl mercaptan (CH_3SH).

Annex 1 to Appendix 2

Definition of Volatile Organic Compounds

For the purposes of this Guideline, volatile organic compounds (VOCs) are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and has a vapour pressure of 0.01 kPa or greater at 25°C [21, 22].

The following compounds are not included as VOCs because of their negligible photochemical reactivity [22]:

methane;
ethane;
methylene chloride (dichloromethane);
1,1,1-trichloroethane (methyl chloroform);
1,1,2-trichloro-1,2,2- trifluoroethane (CFC-113);
trichlorofluoromethane (CFC-11);
dichlorodifluoromethane (CFC-12);
chlorodifluoromethane (HCFC-22);
trifluoromethane (HFC-23);
1,2- dichloro 1,1,2,2-tetrafluoroethane (CFC-114);
chloropentafluoroethane (CFC-115);
1,1,1-trifluoro 2,2-dichloroethane (HCFC-123);
1,1,1,2- tetrafluoroethane (HFC-134a);
1,1-dichloro 1-fluoroethane (HCFC-141b);
1-chloro 1,1-difluoroethane (HCFC-142b);
2-chloro-1,1,1,2- tetrafluoroethane (HCFC-124);
pentafluoroethane (HFC-125);
1,1,2,2- tetrafluoroethane (HFC-134);
1,1,1-trifluoroethane (HFC-143a);
1,1- difluoroethane (HFC-152a);
parachlorobenzotrifluoride (PCBTF);
cyclic, branched, or linear completely methylated siloxanes;
acetone;
perchloroethylene (tetrachloroethylene);
3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee);
difluoromethane (HFC-32);
ethylfluoride (HFC-161);
1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
1,1,2,2,3-pentafluoropropane (HFC-245ca);
1,1,2,3,3-pentafluoropropane (HFC-245ea);
1,1,1,2,3-pentafluoropropane (HFC-245eb);
1,1,1,3,3-pentafluoropropane (HFC-245fa);
1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
1,1,1,3,3-pentafluorobutane (HFC-365mfc);
chlorofluoromethane (HCFC-31);
1-chloro-1-fluoroethane (HCFC-151a);
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);

1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$);
2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCF_2OCH_3$);
1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$);
2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCF_2OC_2H_5$);
methyl acetate and perfluorocarbon compounds which falls into these classes:

(i) Cyclic, branched, or linear, completely fluorinated alkanes;
(ii) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;
(iii) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and
(iv) Sulphur containing perfluorocarbons with no unsaturations and with sulphur bonds only to carbon and fluorine.

Owing to the numerous VOC species, it is not possible to give an all inclusive list of atmospherically important VOCs. A list of VOC compounds based on Carter's [23] list of ozone forming potential contaminants, not including those in the aforementioned USEPA exclusion list, is available from the Ministry of the Environment's Public Information Centre upon request.

Annex 1 to Appendix 3

Contaminants Listed under Glycol Ethers	Abbreviation	CAS
ETHYLENE GLYCOL BUTYL ETHER	EGBE	111-76-2
ETHYLENE GLYCOL BUTYL ETHER ACETATE	EGBEA	112-07-2
DIETHYLENE GLYCOL BUTYL ETHER	DEGBE	112-34-5
DIETHYLENE GLYCOL BUTYL ETHER ACETATE	DEBBEA	124-17-4
DIETHYLENE GLYCOL METHYL ETHER	DEGME	111-77-3
DIETHYLENE GLYCOL METHYL ETHER ACETATE	DEGMEA	629-38-9
DIETHYLENE GLYCOL ETHYL ETHER	DEGEE	111-90-0
DIETHYLENE GLYCOL ETHYL ETHER ACETATE	DEGEEA	112-15-2
ETHYLENE GLYCOL PROPYL ETHER	EGPE	2807-30-9
ETHYLENE GLYCOL HEXYL ETHER	EGHE	112-25-4
1-METHOXY-2-PROPANOL	PGME	107-98-2
PROPYLENE GLYCOL METHYL ETHER ACETATE	PGMEA	108-65-6
PROPYLENE GLYCOL PROPYL ETHER	PGPE	1569-01-3
PROPYLENE GLYCOL BUTYL ETHER	PGBE	5131-66-8
PROPYLENE GLYCOL ETHYL ETHER	PGEE	1569-02-4
DIPROPYLENE GLYCOL METHYL ETHER	DPGME	34590-34-8
2-METHOXY-1-PROPANOL	PGME	1589-47-5
ETHYLENE GLYCOL PHENYL ETHER	EGPhE	122-99-6

Annex 2 to Appendix 3

Definition of Three Mineral Spirits Groups and the Associated Contaminants	
MINERAL SPIRITS GROUP #1	**CAS**
HEAVY ALKYLATE NAPHTHA	64741-65-7
HEAVY NAPHTHA	68551-17-7
HYDROTREATED HEAVY NAPHTHA	64742-48-9
MINERAL SPIRITS	64475-85-0
NAPHTHA	8030-30-6
NAPHTHA HEAVY STRAIGHT RUN	64741-41-9
NAPHTHA, FULL RANGE ALKYLATE	64741-64-6
SOLVENT NAPHTHA LIGHT ALIPHATIC	64742-89-8
SOLVENT NAPHTHA MEDIUM ALIPHATIC	64742-88-7
VM & P NAPHTHA	8032-32-4
STODDARD SOLVENT	8052-41-3
MINERAL SPIRITS GROUP #2	
HEAVY AROMATIC SOLVENT NAPHTHA	64742-94-5
HYDRODESULPHURIZED MIDDLE Distillate	64742-80-9
HYDROTREATED HEAVY NAPHTHENIC Distillate	64742-52-5
HYDROTREATED LIGHT DISTILLATE	64742-47-8
HYDROTREATED MIDDLE DISTILLATE	64742-46-7
LIGHT AROMATIC SOLVENT NAPHTHA	64742-95-6
PETROLEUM DISTILLATES, ACID TREATED	64742-14-9
SWEETENED MIDDLE DISTILLATE	64741-86-2
MINERAL SPIRITS GROUP #3	
HYDROTREATED HEAVY PARAFFINIC MINERAL SPIRITS	64742-54-7
HYDROTREATED LIGHT NAPHTHENIC DISTILLATE	64742-53-6
HYDROTREATED LIGHT PARAFFINIC DISTILLATE	64742-55-8
MINERAL OIL	8012-95-1
SOLVENT REFINED HEAVY PARAFFINIC DISTILLATE	64741-88-4
WHITE MINERAL OIL	8042-47-5

Appendix 4: Contact

For the Ontario Ministry of the Environment:

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Environmental Monitoring and Reporting Branch
Ontario Ministry of the Environment
125 Resources Road
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A help desk has been set up for those who have to report under Ontario's air monitoring and reporting regulation (O. Reg. 127/01) and Environment Canada's National Pollutant Release Inventory (NPRI). This joint Ontario Ministry of the Environment-Environment Canada help desk may be accessed through:

Telephone: (416) 739-4707
Fax: (416) 739-4762
E-mail: npri_onair@ec.gc.ca